Medi-Caps University
Faculty of Engineering

Syllabus for B.Tech. III Semester

B.Tech – Computer Science Engineering

Scheme

Course Code	Course Name	Lecture	Tutorial	Practical	Credit
CS3BS03	Discrete Mathematics	3	1	0	4
CS3CO01	Data Structure	3	0	2	4
CS3CO02	Computer Architecture & Organization	4	0	0	4
CS3CO03	Object Oriented Technology	3	1	0	4
CS3CO07	Micro Processor & Interfacing	3	0	2	4
CS3ELxx	Elective-1	0	0	2	1
CS3ES10	Digital Electronics	3	0	0	3
EN3MC02	Technical English	2	0	0	0
		21	2	6	24
	Total weekly Hours	29			

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Faculty of Engineering

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3BS03	Discrete Mathematics	3	1	0	4

UNIT-I

Sets, sub-sets & operations on sets, Finite and infinite sets, principle of inclusion and exclusion Relations & Properties of relations – equivalence relation, Functions: Definition, Classification of functions, Composition of functions, Growth of Functions, Pigeon hole principle.

UNIT-II

Partial order relation, Poset, least upper bound, greatest lower bound, maximal and minimal elements of a poset – Definition & example of Boolean algebra – Lattices, Distributive laws in lattices – Complemented lattices – Propositional Calculus – Boolean functions, minimum & maximum terms, simplification of Boolean function with Karnaugh map & Quiane Mc Clusky method. Applications in computer Science.

UNIT-III

Binary composition, algebraic structure, Semi group, Monoid, Groups, Abelian Group, properties of groups, Coset Decomposition, Subgroup, Cyclic Group, Normal subgroup, Rings and Fields (definition and standard results). Applications in Computer Science.

UNIT-IV

Trees : Definition , Binary tree , Binary tree traversal , Binary search tree. .Graphs: Definition and terminology , Representation of graphs , Multigraphs , Bipartite graphs , Planar graphs , Isomorphism and Homeomorphism of graphs , Euler and Hamiltonian paths , Graph coloring. Application in Computer Science.

UNIT – V

Recurrence Relation & Generating function: Recursive definition of functions, Recursive algorithms, Method of solving recurrence relation. Combinatorics: Introduction, Counting Techniques -Basic theorems on permutations & combinations. Applications in Computer Science.

TEXT BOOKS

1. Liu and Mohapatra, Elements of Distcrete Mathematics , McGraw Hill
2. Jean Paul Trembley, R Manohar, Discrete Mathematical Structures with Application to Computer Science, McGraw-Hill
3. R.P. Grimaldi, Discrete and Combinatorial Mathematics, Addison Wesley, Kenneth H. Rosen, Discrete Mathematics and Its Applications, McGraw-Hill,
4. B. Kolman, R.C. Busby, and S.C. Ross, Discrete Mathematical Structures, PHI

REFERENCES

1. Rings, Fields and Groups: An Introduction to Abstract Algebra (2nd Ed): Reg Allenby
2. First look at graph theory (1st Ed): John Clark & Derek Allan Holton, Allied Publishers
3. Elements of Discrete Mathematics (1st Ed): L CL Liu, McGraw-Hill
4. Discrete Computational Structures (2nd Ed): Robert R. Korfhage , Academic Press

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3CO01	Data Structure	3	0	2	4

UNIT I LINEAR DATA STRUCTURES:
Abstract Data Types - Asymptotic Notations: Big-Oh, Omega and Theta – Best, Worst and Average case Analysis: Arrays : Definitions, Representations and Examples – Stacks and Queues, Linked List, Linked List based implementations of Stack and Queues, Evaluation of Expressions – Linked list based polynomial addition. Applications of Linked List, Arrays and Queues in Computer field.

UNIT II NON-LINEAR DATA STRUCTURES:
Trees: Binary Trees, Binary tree representation and traversals, Threaded binary trees, Binary tree representation of trees. Application of Trees: Set representation and Union; Find operations, Graph and its representations, Graph Traversals, Connected components.

UNIT III SEARCH STRUCTURES AND PRIORITY QUEUES:
AVL Trees: Red-Black Trees, Splay Trees, Binary Heap, Leftist Heap. Applications of Queues in computer field.

UNIT IV SORTING:
Insertion sort, Merge sort, Quick sort, Heap sort, Sorting with disks – k-way merging – Sorting with tapes – Polyphase merge. Applications of sorting in computer field.

UNIT V SEARCHING AND INDEXING:
Linear Search, Binary Search, Hash tables, Overflow handling, Cylinder Surface Indexing – Hash Index – B-Tree Indexing. Applications of searching and indexing in computer field.

TEXT BOOKS:

1. Ellis Horowitz and Sartaj Sahni, Fundamentals of Data Structures, Galgotia Book Sorce,
   Gurgaon.
2. Gregory L. Heilman, Data Structures, Algorithms and Object Oriented Programming, Tata Mcgraw-Hill, New Delhi.
3. Seymour Lipschutz, Data Structures, Schaum's Outlines Series, Tata McGraw-Hill

REFERENCES:

1. Jean-Paul Tremblay and Paul G. Sorenson, An Introduction to Data Structures with Applications, Second Edition, Tata McGraw-Hill, New Delhi.
2. Alfred V. Aho, John E. Hopcroft and Jeffry D. Ullman, Data Structures and Algorithms,
   Pearson Education, New Delhi.

LIST OF PRACTICALS

1. Create 6 nodes in singly linked list
2. Insert an element in the beginning of singly linked list.
3. Insert an element in the end of singly linked list.
4. Insert an element at any position in singly linked list.
5. Counting the number of nodes in singly linked list.
6. Implement stack using array.
7. Implement stack using linked list.
8. Implement circular queue
9. Insert an element at any position in doubly linked list.
10. Delete a node at given position in doubly linked list.
11. Tower of Hanoi.
12. Reverse a string using stack
13. Implement Binary Tree
14. Implement a Graph and execute the traversals
15. Implement AVL Tree
16. Implement Red Black Tree
17. Implement Splay Tree
18. Implement Binary Heap
19. Implement Insertion Sort
20. Implement Merge Sort
21. Implement Quick Sort
22. Implement Heap Sort
23. Implement Linear Search
24. Implement Binary Search
25. Finding the maximum element in an array

1. A project on Data Structure

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Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3CO02	Computer Architecture and Organization	4	0	0	4

UNIT I BASIC STRUCTURE OF COMPUTERS:

Evolution of Computers and Computer Generations, Computer Classification, Processing speed of a computer, Technology Trends, Measuring Computer. Technology Trends, Measuring Computer Performance, MIPS von Neumann Machine Architecture, Functional Units and Components in Computer Organization, Computers – Block diagram, Memory addressing capability of a CPU, Word length of a computer Basic components of a Digital Computer - Control unit, ALU, IO Subsystem of a Computer, Bus Structures, Uses of Program Development Tool, Editor, Compiler, Assembler, Interpreter.

UNIT II ARITHMETIC UNITS:

Number systems – Decimal Number system, Binary number system and Hexa-decimal number system,1's & 2's complement, Representation of Positive and Negative Numbers Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow. Floating Point Representation, Codes, ASCII Arithmetic Logic Unit.

UNIT III BASIC PROCESSING UNIT

Fundamental concepts – Execution of a complete instruction – Multiple bus organization – Hardwired control – Micro programmed control - Pipelining – Basic concepts, and cost – Data path and control consideration – Parallel Processing, Superscalar operation. Vector and Array Processor, Multithreaded Processors Virtual memory – Examples of Pentium and ARM Processors.

UNIT IV MEMORY SYSTEMS:

Storing data and Program in Memory, Memory Hierarchy in a Computer Internal Organization of Semiconductor Main Memory Chips, Semiconductor RAMs - ROMs – Speed - size and cost – Cache memories Auxiliary Memory Peripheral Devices, Magnetic Memories and Hard Disk, Optical Disks and CD Memories Virtual memory - Memory Management requirements – Secondary storage.

UNIT V ADVANCED PROCESSING UNIT:

Multiprocessor Architectures organization – Performance characteristics of Multiprocessors, Multi-core Architectures, Inter-processor Communication, Cluster Computing, Graphic Processor Units, System-on-Chips.

TEXT BOOKS:

1. Carl Hamacher, Zvonko Vranesic and Safwat Zaky, Computer Organization, 5th Edition, McGraw-Hill.
2. William Stallings, Computer Organization and Architecture – Designing for Performance, 8th Edition, Pearson Education.

Problem and Assignments Book:

1. Nicholas Carter and Raj Kamal, Computer Architecture and Organisation, 2nd Edition, Schaum Outlins, Tata McGraw-Hill Ed., Second Edition.

REFERENCE BOOKS

1. John P.Hayes, Computer Architecture and Organization, McGraw Hill, 3rd Edition.
2. David A.Patterson and John L.Hennessy, Computer Organization and Design: The hardware software interface, Morgan Kaufmann, 3rd Edition.

WEB RESOURCES

- http://www.cs.mcgill.ca/~mhawke1/cs208/02a-ComputerStructureNotes.pdf
- http://www.stat.auckland.ac.nz/~dscott/782/Computers.pdf
- *www-csag.ucsd.edu/teaching/cse141-w00/lectures/Introduction.pdf* –
- www.cise.ufl.edu/~prabhat/Teaching/cda5155-su09/lecture.html
- *www.ecl.incheon.ac.kr/courses/ca6/ca00.syllabus.pdf*
- www.site.uottawa.ca/~mbolic/ceg4131/Ch_14_superscalar.ppt
- *www.ece.eng.wayne.edu/~gchen/ece4680/lecture-notes/lecture-notes.html*
- www.cs.berkeley.edu/~pattrsn/252S01/index.html/140.113.88.21/course/Computer/handout/Ch0.pdf
- www.cs.utwente.nl/~co/co213030/sheets/col10.pdf
- *www.ece.eng.wayne.edu/~gchen/ece4680/lecture-notes/lecture-notes.html* -
- www.cs.utwente.nl/~co/co213030/sheets/col10.pdf
- www.cs.utexas.edu/~dburger/teaching/cs352- s07/lectures_07/Lecture_1.pdf

Medi-Caps University
Faculty of Engineering

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3CO03	Object Oriented Technology	3	1	0	4

UNIT I
Need of Object-Oriented Programming - Procedural Languages - The Object-Oriented Approach - Characteristics of Object-Oriented Languages. Difference between Object based and Object Oriented languages.Abstract data types, Objects and classes, Attributes and Methods, Objects as software units, Encapsulation and Information hiding, Objects instantiations and interactions, Object lifetime, Static and dynamic objects, global and local objects, Metaclass, Modeling the real world objects.

UNIT II
Relationships between classes, Association of objects, Types of Association, Recursive Association, Multiplicities, Navigability, Named association, Aggregation of objects. Types of Aggregation, Delegation, Modeling Association and Aggregation.

UNIT-III
Inheritance and Polymorphism, Types of polymorphism, Static and dynamic polymorphism, Operator and Method overloading, Inherited methods, Redefined methods, the protected interface, Abstract methods and classes, Public and protected properties, Private operations, Disinheritance, Multiple inheritance.

UNIT-IV
Container Classes, Container types, typical functions and iterator methods, Heterogeneous containers, Templates, Persistent objects, stream, and files, Object oriented programming languages.

UNIT V
Introduction to Object Oriented modeling and Design:- Object Oriented modeling, Object Oriented modeling Concepts, Object Oriented methodology, Introduction to Object Oriented modeling techniques:- Modeling, modeling techniques, object model, Dynamic Model and Functional Model, relationship among models. Dynamic Modeling: Dynamic modeling concepts. Functional Modeling: Functional Modeling Concepts.

TEXT BOOKS:

1. Object Oriented Design by Rumbaugh (Pearson publication)
2. Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.
3. Object-oriented programming with C++ By E.Balagurusamy, 2nd Edition, TMH.
4. Venugopal K R , Rajkumar Buyya and Ravishankar T, " Mastering C++", Tata McGrawHill Publishing Company, New Delhi.
5. Bjarne Stroustrup, "Programming: Principles and Practice using C++" , Addison-Wesley, Massachusetts, USA.
6. Oualline S., Practical C++ Programming, 2/e, O'Reilly Media.

7. Stephen D. R., C. Diggins, J. Turkanis and J. Cogswell, C ++ Cook book, O'Reilly Media.
8. Meyers S., Effective C++, Addison Wesley. Error Control Coding Fundamentals and Applications: Prentice Hall Inc.

REFERENCE BOOKS

1. Lafore R., Object Oriented Programming in C++, Galgotia Publications.
2. Schildt H., Teach Yourself C++, Tata McGraw Hill.
3. Hubbard J. R., Schaum's Outline of Programming with C++, McGraw Hill.
4. Balagurusamy, Object Oriented Programming with C++, Tata McGraw Hill.

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3CO07	Micro Processor & Interfacing	3	0	2	4

UNIT-I

Introduction to 8 bit microprocessor: Microcomputers and microprocessors, 8/ 16/ 32/ 64-bit microprocessor families; Internal architecture of Intel 8085 microprocessor: Block diagram, Registers, Internal Bus Organization, Functional details of pins, Control signals, External Address / Data bus multiplexing, De-multiplexing, Serial communication and DMA features, Intel 8086, x86 and Pentium microprocessors Block diagrams.

UNIT-II

Assembly Language Programming: 8085 instruction set: Instructions, Classifications, Addressing modes, Stack and Subroutines, Delay routines, Counters etc., Programming examples.

UNIT-III

Interfacing concepts and devices: Memory interface: Concept of memory chip/ chips interface to 8085 with appropriate examples, / IO mapped I/ O, and memory mapped I/ O techniques. Programmable interfacing devices: - Programmable peripheral interface (Intel 8255), Programmable timer interface (Intel 8253/ 54), Programmable display / Keyboard interface (Intel 8279), Programmable serial communication interface (Intel 8251)-(their architecture, register organization, initialization, hardware and software interface to 8085.

UNIT- IV

Instruction Timing and Interrupts: Timing Diagrams (of various instructions): T- state, Machine cycle (Opcode fetch, Read / Write, Interrupts, Interrupt Acknowledge, Bus Idle, etc), Interrupts: -types (h/ w and s/ w), Maskable / Non maskable and their organization.

UNIT V

Introduction to Intel Architecture, How an Intel Architecture System works, Internal architecture of Basic Components of the Intel Core 2 Duo Processor: The CPU, Memory Controller, I/O Controller; Intel Core i7: Architecture, The Intel Core i7 Processor, Intel QuickPath Interconnect, The SCH; Intel Atom Architecture. Introduction to Texas Instruments' Multi-Core Multilayer SoC architecture for communications, infrastructure equipment.

TEXT BOOKS:

1. Gaonkar: Microprocesors, Architecture, Programming and Applications, Wiely Eastern, 4th ed.
2. K. UdayaKumar, B.S. Umasankar, "The 8085 Microprocessor-Architecture, Programming and Interfacing", 5e, ISBN : 978 – 81 – 7758 – 455 - 4
3. Nagoor Kani, Microprocessors, architecture and programming, RBA Publications.
4. Douglas V. Hall , Microprocessors, Interfacing and Peripherals, Tata McGraw Hill,2nd ed.
5. S. P. Chowdhuray, Sunetra Chowdhuray, Microprocessors and Peripherals, SCITECH.

6. Ghosh and Sridhar: 0000 to 8085 Microprocessors for Engineers and Scientists.PHI, 2nd ed.
7. Shameem Akhtar, Jason Roberts: Multi-core Programming, Increasing Perfoemance through Software.
8. Multithreading, Intel Press.

REFERENCE BOOKS:

1. Calvin Lin. Lawrence Snyder: Principles of Parallel Programming, Pearson Education.
2. Michael J. Quinn : Parallel Programming in C with MPI and Open MP, Tata Macgraw Hill.
3. Reinders : Intel Threading Building Blocks, O'reilly.
4. David Culler et. Al.: Parallel Computer Architecture : A Hardware/Software Approach, Elsevier.
5. Richard Gerder, Aart J.C. Bik, Kevin B. Smith , Xinmin Tian: Software Optimization Cookbook, High Performance Recipes for IA-32 Platforms, 2nd edition, Intel Press.
6. Web resources for Example Architectures of INTEL and Texas Instruments:
   http://download.intel.com/design/intarch/papers/321087.pdf :
   http://focus.ti.com/lit/wp/spry133/spry133.pdf

LIST OF PRACTICALs

1. Write and execute an assembly language program to 8085 Microprocessor to add, subtract and multiply two 16 bit unsigned numbers. Store the result in extra segment
2. Write and execute an assembly language program to 8085 Microprocessor to divide a 32 bit unsigned numbers by a 16 bit unsigned number. Store the result in stack segment
3. Write and execute an assembly language program to 8085 Microprocessor to a sort the give array of 32 bit number in ascending and descending order.
4. Write and execute an assembly language program to 8086 Microprocessor to pick the median from the given array of numbers.
5. Write and execute an assembly language program to 8086 Microprocessor to reverse the given string and verify whether it is a palindrome
6. To write and execute an Assembly language Program to 8086 processor to verify the password.
7. To write and execute an Assembly language Program to 8086 processor to insert or delete a character/ number from the given string.
8. To write an assembly language program to display current system time.(DOS PROGRAMMING)
9. Write a program in assembly level to establish Communication between two processors using 8251.
10. Program to generate following wave forms a). Ramp waveform b). Square waveform c). Step waveform d). Triangle waveform

Elective-I

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3EL01	Programming with C++	0	0	2	1

LIST OF PRACTICALS FOR C++

1. WAP to illustrate Arithmetic expressions.
2. WAP to swap two numbers without use of third variable.
3. WAP to convert temperature from 0C to Fahrenheit.
4. WAP to check given number is divisible by 3, 4 and 8 or not.
5. WAP to calculate factorial of any number.
6. WAP to check given number is prime or not.
7. WAP to check given number is Armstrong or not.
8. WAP to print name of day according to number.
9. WAP to find multiplication of two matrix.
10. Write a function to pass a char array as an argument and find length of string.
11. WAP to print this string "ram-sharma" in form of following pattern:
12. Name = Ram Surname = Sharma.
13. WAP to illustrate Arrays.
14. RWAP to illustrate functions.
15. WAP to illustrate Object and classes.
16. WAP to illustrate constructor & Destructor.
17. WAP to illustrate Operator overloading.
18. WAP to illustrate Function overloading.
19. WAP to illustrate Derived classes & Inheritance.
20. WAP in C++ to understand concept of 'this' keyword.
21. WAP in C++ to understand concept of this pointer.
22. WAP of static keyword in C++ which counts the objects.
23. WAP in C++ that show difference between function overloading and function overriding.
24. WAP in C++ to understand runtime polymorphism.
25. WAP in C++ to implement abstract class.
26. Write a program of constructor and destructor in C++ which is called automatically.
27. WAP IN C++ of friend function used to print the length of a box.
28. Create an abstract class Shape which calculate the area and volume of 2-d and 3-d shapes with methods getArea() and getVolume(). Reuse this class to calculate the area and volume of square, circle, and cube.
29. WAP to insert and delete and element from the Stack.
30. WAP to insert and delete and element from the Queue.
31. WAP to insert and delete and element from the Linked List.

TEXT BOOKS:

1. Object Oriented Programming with C++ by E. Balagurusamy.
2. Object Oriented Programming in C++ by Robert Lafore
3. Mastering C++ by K. R. Venugopal
4. The C++ Programming Language by Bjarne Stroustrup

Medi-Caps University
Faculty of Engineering

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3EL02	Programming with Java	0	0	2	1

LIST OF PRACTICALS FOR JAVA

1. Installation of J2SDK
2. WAP in java to print "Hello Medicaps".
3. Write a program to show Scope of Variables
4. Write a program to show Concept of CLASS in JAVA.
5. Write a test application named *EmployeeTest* that demonstrates class Employee's capabilities.
6. Write an application that prompts the user for the radius of a circle and uses a method called circleArea to calculate the area of the circle. Add another method circlePerimeter to calculate the perimeter of the circle.
7. Create two employee objects and display each object's yearly salary.
8. Write a program to show Type Casting in JAVA Write a Program to show Inheritance.
9. Write an application to create a super class Employee with information first name & last name and methods get FirstName(), getLastName() derive the sub-classes ContractEmployee and RegularEmployee with the information about department, designation & method displayFullName() , getDepartment, getDesig() to print the salary and to set department name & designation of the corresponding sub-class objects respectively.
10. WAP in java that why java not support multiple inheritance.
11. WAP in java to use of Static keyword and static method.
12. WAP in java to use this keyword.
13. Write a program to show Polymorphism.
14. Create an abstract class Shape which calculate the area and volume of 2-d and 3-d shapes with methods getArea () and getVolume (). Reuse this class to calculate the area and volume of square, circle, and cube.
15. Write a program to show Access Specifiers (Public, Private, Protected) in JAVA
16. Write a program to show use and Advantages of CONTRUCTOR.
17. Write a program to show Interfacing between two classes
18. Write a program to show How Exception Handling is in JAVA.
19. Write a program to re-throw an exception –
20. Define methods one() & two(). Method one() should initially throw an exception. Method two() should call one(), catch the exception and re-throw it Call two() from main() and catch the re-thrown exception.
21. Write a program for *NullPointerException*--thrown if you attempt to perform an operation on an o*bject* that points to no data, or *null.*
22. Write a program to Add a Class to a Package
23. Write a program to show Life Cycle of a Thread.
24. Write a program to count thread execution of two threads when main thread calls sleep (10000). Where thread1 has priority: 1 and thread2 has priority: 10.
25. Write a program for producer consumer problem (with synchronization).
26. Write a program to demonstrate AWT.
27. Write a program to Hide a Class.

28. Write a Program to show Data Base Connectivity Using JAVA
29. Write a Program to show "HELLO MEDICAPS" in Explorer using Applet.
30. Write a Program to show Connectivity using JDBC.
31. Write a program to demonstrate multithreading using Java.
32. Write a program to demonstrate applet life cycle.
33. Write a program to demonstrate concept of servlet.

TEXT BOOKS:

1. E. Balaguruswamy, "Programming In Java"; TMH Publications
2. The Complete Reference: Herbert Schildt, TMH
3. Deitel & Deitel, "JAVA, How to Program"; PHI, Pearson.
4. Cay Horstmann, Big JAVA, Wiley India.
5. Merlin Hughes, et al; Java Network Programming , Manning Publications/Prentice Hall

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3EL03	Programming with Python	0	0	2	1

LIST OF PRACTICALS

1. Write a Python program to get the Python version you are using.
2. Write a Python program to display the current date and time.
3. Write a Python program which accepts the radius of a circle from the user and compute the area.
4. Write a Python program which accepts the user's first and last name and print them in reverse order with a space between them.
5. Write a Python program which accepts a sequence of comma-separated numbers from user and generate a list and a tuple with those numbers.
6. Write a Python program to accept a filename from the user and print the extension of that.
7. Write a Python program to print the documents (syntax, description etc.) of Python built-in functions example abs().
8. Program to test whether a number is within 100 of 1000 or 2000.
9. Python program to find whether a given number (accept from the user) is even or odd, print out an appropriate message to the user.
10. Write a Python program to concatenate all elements in a list into a string and return it.
11. Write a Python program to add two objects if both objects are an integer type.
12. Write a Python program to check whether a file exists.
13. Write a Python program to determine if a Python shell is executing in 32bit or 64bit mode on OS.
14. Create Simple GUI using the concepts used.
15. Case study on python editors, interpreters and compilers.
16. A project on PYTHON

TEXT BOOKS:

1. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
2. R. Nageswara Rao, "Core Python Programming", dreamtech
3. Wesley J. Chun. "Core Python Programming - Second Edition", Prentice Hall
4. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Pyhon", Wiley.
5. Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication
6. Luke Sneeringer, "Professional Python", Wrox
7. "Hacking Secret Ciphers with Python", Al Sweigart URLhttps://inventwithpython.com/hacking/chapters

Medi-Caps University
Faculty of Engineering

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3EL04	Programming with C#.Net	0	0	2	1

LIST OF PRACTICALS

1. WAP in C# to create a method for reading numbers from a file.
2. WAP to convert temperature from 0C to Fahrenheit.
3. WAP to print grade of student on the basis of percentage:
4. If per greater than or equal to 75 □ A grade
5. If per between 60-75 □ B grade
6. If per between 50-60 □ C grade
7. If per between 40-50 □ D grade
8. If per less than 40 □ Fail
9. WAP in C# to Iterating through a file with a while loop.
10. Write a recursive function to calculate factorial of any number.
11. WAP in C# to print Fibonacci series.
12. Create a class called Employee that includes three pieces of information as instance variables – a first name (type String), a last name (type String) and a monthly salary (double).
13. WAP in C# to finding the fastest lap with foreach.
14. WAP in C# to testing multiple conditions with switch and case.
15. WAP in C# using if-else-if ladder statement to executes one
16. condition from multiple statements.
17. Create a class that has two fields: id and name. It creates instance of the class, initializes the object and prints the object value.
18. WAP in C# of jagged array in C# which declares, initializes and traverse jagged arrays.
19. WAP in C# of static class that contains static field and static method.
20. WAP in C# of aggregation where Employee class has the reference of Address class as data member. In such way, it can reuse the members of Address class.
21. WAP of this keyword in C# that refers to the fields of current class.
22. WAP in C# to understand concept of call by value.
23. WAP in C# that how a function can return multiple values using Out Parameter.
24. Working with call backs and delegates in C# .
25. Create a super class CommunityMember with the information of member i.e. name,address,contact,date_of_join through methods getName(),getAddress()
26. getContact(),getDate_of_Join(),setName(),setAddress(),setContact(),setDate_of_Join( ),
27. and derive sub-classes Employee and Student with method Qualification() to print the related information with his/her qualification n C#.
28. Write a program to count thread execution of two threads when main thread calls sleep(10000). Where thread1 has priority: 1 and thread2 has priority: 10.
29. Write a program for producer consumer problem (with synchronization).
30. Write a program that shows that the order of the catch blocks is important. If you try to catch a superclass exception type before a subclass type, the compiler should generate errors. (use at least 3 exceptions in your program) in C#.

31. Code access security with C#.
32. Creating a COM+ component with C#.
33. Creating a Windows Service with C#
34. Interacting with a Windows Service with C#
35. Using Reflection in C#
36. Sending Mail and SMTP Mail and C# .
37. Perform String Manipulation with the String Builder and String Classes and C#.
38. Using the System .Net Web Client to Retrieve or Upload Data with C# .
39. Reading and Writing XML Documents with the XML Text-Reader/-
40. Writer Class and C#.

TEXT BOOKS:

1. C# for Programmers by Harvey Deitel, Paul Deitel, Pearson Education
2. Balagurusamy; Programming in C#; TMH
3. Web Commerce Technology Handbook by Daniel Minoli, Emma Minoli , TMH

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
CS3ES10	Digital Electronics	3	0	0	3

UNIT I NUMBER SYSTEM:
Introduction to binary numbers, data representation, binary, octal, hexadecimal number system and their conversion, various coding schemes such as BCD codes, Excess-3 code, Gray code. Binary arithmetic, Boolean Algebra, Basic Theorems and properties of Boolean Algebra, Boolean Functions, Canonical and Standard forms, minimization techniques, Sum of products and Product of Sums Simplification, Karnaugh's map method, Quine Mecluskey method.

UNIT II LOGIC GATES AND COMBINATIONAL LOGIC:
Digital Logic Gates such as AND,OR, NAND,NOR, EX-OR,EX-NOR. Realization of Boolean functions using logic gates. Adders, substractors, BCD adder, magnitude comparator, decoders and encoders, multiplexers and demultiplers, code converters. Analysis and design of combinational circuits. Implementation of combinational logic using multiplexers, decoders etc.

UNIT III SEQUENTIAL CIRCUITS:
Introduction, comparison of sequential and combinational circuits. Various types of flip-flops and their conversions, triggering of flip flops, timing issues, setup and hold times, registers, counters, ring, johnson, asynchronous and synchronous. Finite state machines, Moore and Mealy, design of synchronous sequential circuits.

UNIT IV MEMORIES:
ROM, PLA and PAL. Memories : organisation and construction of RAM, SRAM, DRAM, ROM, PROM, EPROM, EEPROM.

UNIT V LOGIC FAMILIES:
DTL, RTL, TTL, IIL, PMOS, NMOS and CMOS logic families, interfacing between TTL and MOS vice-versa.

Text Book:

1. D Roy Chudhury, Digital Circuits,Vol-I & II, Eureka Publication.
2. M. Mano, Digital and Computer Design, Pearson Education.

REFERENCES :

1. Leach and Malvino, Digital Principles and Applications, TMH.
2. Millman and Taub, Pulse, Digital and Switching Waveforms, MGM.
3. .A.Anand Kumar: Digital Circuits, PHI.
4. Salivahanam and Ari Vahagan: Digital Circuits and Design, Vikas Publishing House.

Course Code	Course Name	Hours per Week			Total
		L	T	P	Credits
EN3MC02	Technical English	2	0	0	0

UNIT-I LISTENING SKILLS:

Listening for general content, Listening to fill up information, Intensive listening, Listening for specific information

UNIT-II SPEAKING SKILLS:

Oral practice, Describing objects/situations/people, Role play - Individual/Group activities (Using exercises from all the nine units of the prescribed text: Learning English (A Communicative Approach.), Just A Minute(JAM) Sessions.

UNIT-III READING SKILLS:

Skimming the text, Understanding the gist of an argument, Identifying the topic sentence, Inferring lexical and contextual meaning, Understanding discourse features, Recognizing coherence/sequencing of sentences

UNIT-IV WRITING SKILLS:

Writing sentences, Use of appropriate vocabulary, Paragraph writing, Coherence and cohesiveness, Narration / description, Note Making, Formal and informal letter writing, Editing a passages

UNIT V PROFESSIONAL PRESENTATION DYNAMICS:

preparing and presenting technical researches, making effective PPTs, formatting, editing, preparation and delivery.

TEXT BOOKS

1. LEARNING ENGLISH: A Communicative Approach, Hyderabad: Orient Longman. (Six Selected Lessons)
2. WINGS OF FIRE: An Autobiography - APJ Abdul Kalam, Abridged version with Exercises, Universities Press (India) Pvt. Ltd.
3. Astronomy from LEARNING ENGLISH: A Communicative Approach, Orient Longman.
4. Information Technology from LEARNING ENGLISH: A Communicative Approach, Orient Longman.
5. Humour from LEARNING ENGLISH: A Communicative Approach, Orient Longman.
6. Environment from LEARNING ENGLISH: A Communicative Approach, Orient Longman.
7. Inspiration from LEARNING ENGLISH: A Communicative Approach, Orient Longman.
8. Human Interest from LEARNING ENGLISH: A Communicative Approach, Orient Longman.